REMARKS

Claims Objections to Drawings

The Examiner **objects to the drawings** as lacking labeling of FIGS. 1-2 and lacking mention of reference item 900 in FIG. 9 in the specification. Revised drawings accompany this response. Specification paragraph [0083] is amended to mention reference 900.

Applicant respectfully submits that the objections to drawings should be withdrawn.

Rejection Under 35 U.S.C. § 102(e) of Claims 1-47

The Examiner rejects **claims 1-47** under 35 U.S.C. § 102(e) as anticipated by Sandstrom (6618185).

Claim 1

Claim 1 (as amended) includes the limitations:

> arranging a first pattern in said spatial light modulator, wherein features in an area of the first pattern are too small and closely spaced to be individually resolved by the detector arrangement,

These limitations are not found in Sandstrom, which teaches spacing of features so that "The light in the CCD-camera image within a certain area is assumed to come from one pixel in the SLM, provided that the surrounding SLM pixels do not change." Col. 17, lines 33-35. The three step approach described in column 12 and again in column 16 emphasizes separation between SLM clusters or pixels that are being evaluated, specifying separation of 30, 20 or 10 pixels, which is enough to assure that a certain area is impacted by only one projected feature. When a chessboard pattern is discussed, at the bottom of column 20, Sandstrom discusses "analyzing the line width in the two images" so that a bad pixel "give a line width error". This is different than having a chessboard pattern with features so small and closely spaced that, for instance, the chessboard pattern is detected as a uniform gray pattern on the detector.

Therefore, claim 1 should be allowable over Sandstrom.

Claims 11, 15 & 16

Claims 11, 15 & 16 include the limitations:

wherein said chessboard patterns are comprised of only non-deflected and partially deflected pixels.

wherein said chessboard patterns are comprised of only fully-deflected and partially deflected pixels.

wherein said chessboard patterns are comprised of pixels being in a first partially deflected state and a second partially deflected state.

These limitations are not found in Sandstrom. The discussion of the chessboard pattern at the bottom of column 20 is in the context of a binary (on-off) SLM, which does not produce grayscale levels. Sandstrom teaches a "pattern containing parallel black and white lines or a chessboard pattern [that] will highlight the pixels that are on the edges." This does not anticipate use of grayscaled pixels in a chessboard pattern.

Therefore, claims 11, 15 & 16 should be allowable over Sandstrom.

Claims 2-10 and 12-14

Claims 2-10 and 12-14 should be allowable over Sandstrom for at least the same reasons as the claims from which they depend.

Claim 17

Claim 17 includes the limitations:

detecting a relayed image of a first chessboard pattern of pixels in said spatial light modulator by said detector, wherein squares of the first chessboard pattern are too small and closely spaced to be individually resolved by said detector,

These limitations are not found in Sandstrom. As explained in the context of claim 1, Sandstorm teaches spacing of features so that "The light in the CCD-camera image within a certain area is assumed to come from one pixel in the SLM, provided that the surrounding SLM pixels do not change." Col. 17, lines 33-35. The three step approach described in column 12 and again in column 16 emphasizes separation between SLM clusters or pixels that are being evaluated, specifying separation of 30, 20 or 10 pixels, which is enough to assure that a certain area is impacted by only one projected feature. When a chessboard pattern is discussed, at the bottom of column 20, Sandstrom discusses "analyzing the line width in the two images" so that a bad pixel will "give a line width error". This is different than having a chessboard pattern with features so small and closely spaced that, for instance, the chessboard pattern is detected as a uniform gray background on the detector.

Therefore, claim 17 should be allowable over Sandstrom.

Claims 24 & 26-29

Claims 24 & 26-29 include the limitations:

> wherein said chessboard patterns are comprised of only non-deflected and partially deflected pixels.
>
> wherein said first and second patterns are each detected a plurality of times, where the pixels in said patterns are set to different degrees of deflection before each detection event.
>
> wherein said chessboard patterns are comprised of only fully-deflected and partially deflected pixels.
>
> wherein said chessboard patterns are comprised of pixels being in a first partially deflected state and a second partially deflected state.

(Claim 26 depends from and includes the limitations of claim 24.) These limitations are not found in Sandstrom. As explained in the context of claim 11, Sandstrom's discussion of the chessboard pattern at the bottom of column 20 is in the context of a binary (on-off) SLM, which does not produce grayscale levels. Sandstrom teaches a "pattern containing parallel black and white lines or a chessboard pattern [that] will highlight the pixels that are on the edges." This does not anticipate use of grayscaled pixels in a chessboard pattern.

Therefore, claims 24 & 26-29 should be allowable over Sandstrom.

Claims 18-23, 25 & 30

Claims 18-23, 25 & 30 should be allowable over Sandstrom for at least the same reasons as the claims from which they depend.

Claim 31

Claim 31 includes the limitations:

> making an image of a first chessboard pattern unsharp so that a regular chessboard pattern becomes a uniform background at a detector plane and a defective pixel becomes an irregularity in said uniform background at said plane and detectable by a detector.

These limitations are not found in Sandstrom, which emphasizes isolating and detecting at particular detector location(s) the effect of a single pixel, using large features or large separations between small features. For this level of detail, it is not enough to refer to reference numbers in the figures; it is necessary to delve into the text.

Sandstrom's discussion of the chessboard pattern at the bottom of column 20 is in the context of a binary (on-off) SLM, which does not produce grayscale levels. Sandstrom teaches a "pattern containing parallel black and white lines or a chessboard pattern [that] will highlight the pixels that are on the edges." This teaches away from making the chessboard image unsharp, so as to produce a uniform background gray. The Examiner's reference to producing a uniform white miscomprehends the technical effect of unsharpening a chessboard pattern to produce a uniform background. An unsharp chessboard pattern will never produce a uniform, fully illuminated white.

Therefore, claim 31 should be allowable over Sandstrom.

Claim 32

Claim 32 includes the limitations:

> making an image of a second chessboard pattern, which second pattern is inverted to said first pattern, unsharp so that a regular chessboard pattern becomes a uniform background at a detector plane and a defective pixel becomes an irregularity in said uniform background at said plane and detectable by a detector.

These limitations are not found in Sandstrom, for the reasons given above.

Therefore, claim 32 should be allowable over Sandstrom.

Claims 36 & 42, 38 & 44, 39 & 45, 40 & 46

Claims 36 & 42, 38 & 44, 39 & 45, 40 & 46 include the limitation related to use of gray pixels in a chessboard pattern. For the reasons explained above, these limitations are not found in Sandstrom.

Therefore, claims 36 & 42, 38 & 44, 39 & 45, 40 & 46 should be allowable over Sandstrom.

Claims 33-35, 37, 40-41, 43 and 47

Claims 33-35, 37, 40-41, 43 and 47 should be allowable over Sandstrom for at least the same reasons as the claims from which they depend.

Applicant respectfully submits that claims 1-47 should be allowable over Sandstrom.

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CONCLUSION

Applicants respectfully submit that the pending claims are now in condition for allowance and thereby solicit acceptance of the claims as now stated.

Applicants would welcome an interview, if the Examiner is so inclined. The undersigned can ordinarily be reached at his office at (650) 712-0340 from 8:30 a.m. to 5:30 p.m. PST, Monday through Friday, and can be reached at his cell phone at (415) 902-6112 most other times.

Respectfully submitted,

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